NOTES.

ON the initiative of the Royal Society, a Board of Scientific Societies, consisting at present of representatives of twenty-seven scientific, including technical, societies, has been established for the furtherance of the following objects:—Promoting the co-operation of those interested in pure or applied science; supplying a means by which the scientific opinion of the country may, on matters relating to science, industry, and education, find effective expression; taking such action as may be necessary to promote the application of science to our industries and to the service of the nation; and discussing scientific questions in which international co-operation seems advisable. An executive committee has been appointed, consisting of the following members:—Sir Joseph Thomson (chairman), Dr. Dugald Clerk, Sir Robert Hadfield, Mr. A. D. Hall, Prof. Herbert Jackson (hon. secretary), Sir Alfred Keogh Sir Ray Lankester, Prof. A. Schuster, Sir John Snell, Prof. E. H. Starling, Lord Sydenham, and Mr. R. Threlfall. The first meeting of the Board was held on July 20, when important questions relating to scientific, educational, and industrial matters were under consideration, with a view to effective steps being taken for co-ordinating the work carried out at present by a number of independent bodies, or initiating action in the case of other matters of national importance.

IT is announced that the *Discovery*, with the Shackleton Relief Expedition, left Plymouth Sound last Thursday. She will proceed to Port Stanley, Falkland Islands, to embark Sir Ernest Shackleton, and then leave for Elephant Island. It is hoped that she will reach the Falkland Islands by the end of September, and Elephant Island a week later. The *Discovery* should have no difficulty in penetrating the pack and reaching the stranded men. On the other hand, it is quite possible that the conditions will be so favourable in October that little or no ice will be encountered. Lieut.-Commander J. Fairweather, R.N.V.R., is in command of the *Discovery*. He has had long experience among Arctic ice, although this is his first visit to the Antarctic.

IT is stated in the *Times* that the sum of 2500*l*. is being raised by the Archangel Society for the study of the Russian Far North, in furtherance of the search for the two Russian expeditions which sailed in 1912 under, respectively, Lieut. Brusiloff and M. Rousanoff. The money in question is to be used as rewards for information obtained as to the fate of the explorers.

A COLLECTION of British-made laboratory apparatus is on view at the Institute of Chemistry, 30 Russell Square, W.C. The exhibition will remain open until the end of September.

A WARNING against the suggested use of benzoate of soda as a substitute for sugar in jam-making has been issued by the Board of Agriculture and Fisheries. It is pointed out that serious results may follow if the substance in question is used for the purpose named.

THE programme of the celebrations on June 13 in connection with the centenary of the Botanic Gardens, Sydney, has just reached us. Speeches were delivered on the occasion by the Governor of New South Wales, the Premier, and the Minister for Agriculture, and a brief historical address was given by Mr. J. H. Maiden, F.R.S., the director of the gardens. Three vistas were named respectively after Capt. Cook, Sir Joseph Banks, and Governor Phillip, and a rosery is to be known in future as the "Centenary Rosery." The following memorial trees were planted simultaneously by representatives of the Empire and the Allies:—Great Britain and Ireland, the British Oak (*Quercus pedunculata*); Australia, the Bunya Bunya (*Araucaria Bidwilli*) and the Flame Tree (*Brachychiton acerifolia*); Sydney, the Port Jackson Fig (*Ficus rubiginosa*); New Zealand, the Kauri (*Agathis australis*); South Africa, the Cape Chestnut (*Calodendron capensis*); Canada, the Sweet Gum (*Liquidambar styraciflua*); India, Indian Date Palm (*Phoenix sylvestris*); Belgium, Black Belgian Poplar (*Populus monilifera*); France, Nettle Tree, or Perpignan Wood (*Celtis australis*); Russia, the Aspen (*Populus tremula*); Italy, Lombardy Poplar (*Populus nigra*, var. *pyramidalis*); Serbia, the Carob (*Ceratonia siliqua*); Montenegro, the Olive (*Olea europaea*); Portugal, Portugal Laurel (*Prunus lusitanicus*); Japan, Japanese Maple (*Acer japonica*); after which a memorial stone of a proposed museum of botany and horticulture was laid.

WE regret to record the death of Mr. Charles Dawson, which occurred, after a long illness, at Lewes on August 10. Mr. Dawson was born in Lancashire on July 11, 1864, but spent most of his early life at St. Leonards-on-Sea, where he soon became interested in the geology and archæology of the neighbourhood. Encouraged by the late Mr. S. H. Beckles, he devoted attention especially to the fossil remains of reptiles found in the Wealden formations quarried round Hastings, and made a large collection, which he placed in the British Museum, and continually enriched almost until the end of his life. He discovered some new species of iguanodon, of which one was named after himself by Mr. R. Lydekker. After persistent search in the bone-beds for many years, Mr. Dawson also found the first tooth of a Wealden mammal (*Plagiaulax dawsoni*). His interest in archæology gradually led him to studies of prehistoric man, and for many years he searched the gravels and other superficial deposits of southern Sussex for traces of man and his handiwork. He was ultimately rewarded, in 1912, by the discovery of the now famous skull and mandible of *Eoanthropus dawsoni* in a very old gravel at Piltdown, near Uckfield. During his busy professional career as a solicitor Mr. Dawson never neglected any opportunity of contributing to the knowledge of the geology and archæology of the district in which he resided, and his comparatively early death is a distinct loss to science.

THE death is announced, in his seventy-third year, of Dr. William Simon, professor of chemistry at the Baltimore College of Physicians and Surgeons since 1880. He was president of the Maryland Pharmaceutical Association in 1887. Dr. Simon was the author of a manual of chemistry, and had done special work in autochromatic photography.

THE death is announced, at the age of seventy-four years, of Dr. Ferdinand Fischer, professor of chemical technology in the University of Göttingen.

THE report of the Advisory Committee for Aeronautics, 1915–16, contains a summary of the work carried out by the Advisory Committee during the past year, and shows in a striking way the effect that the war has had upon aeronautics in general and upon experimental aeronautics in particular. The experimental work at the National Physical Laboratory is first dealt with, and the extent of the developments in this branch of the work is very marked, the aeronautical department at the laboratory having practically doubled in size since the outbreak of war. The experimental work that has been done covers a wide range, including experiments in the wind channels on models of aeroplanes and parts of aeroplanes, airships, and kite balloons; investigations into the strength of fabrics, wing spars, light alloys, stream-line wires, and other materials of construction; and researches into many special subjects that have arisen from time to time. The work of the Royal Aircraft Factory is summarised, with particular attention to the experimental side of the work, and to the endeavours which are being made to link up model experiments with full-scale tests. Considerable stress is laid on the precision with which the performance and stability of a new design can now be calculated, and on the fact that it has been found possible to obtain large quantities of good, stable, and serviceable machines from firms without previous experience of aircraft construction by providing them with complete drawings and details. The design of new machines proceeds by making a few trial machines, and four main types have been standardised for contract purposes. A brief account of the work done specially for the Admiralty Air Department, and of the meteorological work of the past year, completes the report. The technical appendix, containing detailed results of experiments, cannot, of course, be published during the war, but it is clearly emphasised in the report itself that the detailed technical results are freely communicated to Government contractors who need them, and who apply for them through the proper channels.

THE paper by Messrs. H. J. Fleure and T. C. James, published in the Journal of the Royal Anthropological Institute, vol xlvi., January–June, 1916, one of the most valuable recent contributions to the study of the races of Great Britain, must be read as a whole with due regard to the mass of statistics on which the authors base their conclusions regarding the geographical distribution of anthropological types in Wales. At present they are inclined to believe that a Brythonic advance into Wales, probably *viâ* Powys, occurred at some time not remote from the Roman invasion. It may have been in waves pushing back old languages or dialects which were probably nearer to the Gaelic group than is Brythonic. As regards physical types, they note a characteristic increase of the fair, medium-headed type as we descend into the Severn basin and that of the Wye, and all through this region, and the Welsh border generally, there is a suggestion of dilution of pigment in the Neolithic or Mediterranean type. Whether this can be connected with the Brythonic invaders is doubtful; it may be due to later infiltration. They also remark that while the fair-haired, light-eyed men of the Severn and Wye valleys often have medium to broad heads, this type also appears in eastern England. The suggestion is made that in the latter area the infusion may be partly Brythonic, partly Anglo-Saxon. It is not safe to assume that the fair men in eastern England are necessarily post-Roman Teutons; they may be Brythons, and it is difficult to distinguish their ultimate origin. There is at least the possibility that the pre-Roman peoples are fairly well represented even in East England.

IN the Journal of the Royal Anthropological Institute, vol. xlvi., January–June, 1916, Mr. Harold Peake investigates the ethnology of the people who destroyed the Trojan city known as Hissarlik II. Following the lead of Mr. Ellsworth Huntington, he suggests that a period of drought, beginning about 2450 B.C., led to extensive race movements of Arabian tribes across the Sinaitic peninsula into the Egyptian delta, while later waves successively invaded Palestine and Syria, introducing the knowledge of metals, perhaps gained from their kinsmen in Egypt, and founding Damascus. Thence they migrated to Assyria and Babylonia. Meanwhile the drought in the steppes adjoining the Caspian led to the migration of the Bak tribes into China. Later on the Nordic steppe-folk on either side of the Volga, finding their pasturage diminishing, occupied the region abandoned by the Bak tribes, and passed into Persia, where they became known as the Kassites. Others of the same group overran Galicia and Rumania, and penetrated into Hungary and Thrace. This last body divided into two groups; one occupied the Larissan plain, while another party crossed the Hellespont, destroyed Hissarlik II., and poured into Anatolia. These may have later appeared south as the Amorites, or they may survive to the present day as the Kurds. Many of these conclusions are speculative, but the theory now presented with a considerable array of corroborative evidence clears up many difficulties, and is decidedly attractive.

THE Royal Botanic Gardens, Kew, have received a very interesting and valuable presentation from Lady Church in the collection of botanical water-colour drawings brought together by the late Sir Arthur Church. The drawings have been placed in a room leading out of the North Gallery—once Miss North's studio—and are now open to public inspection. The exhibition of the pictures has been made possible by the generosity of Lady Church. There are some fine examples of the work of Simon Varelst, G. D. Ehret, R. P. Nodder, A. Power, and other well-known flower painters. In order to make the collection as representative as possible some examples of the work of W. H. Fitch, Sir J. D. Hooker, F. Bauer, and others have been placed on the walls from the collection of paintings already at Kew. An account of the collection is given in Kew Bulletin, No. 6, 1916.

THE luminous and very poisonous fungus, *Pleurotus japonicus,* which grows on decaying trunks of the beech tree in Japan, has been investigated by Katamura in the Journal of the College of Science, Tokyo, vol. xxxv., p. 1. The light is emitted from the gills, which are luminous all over, and the range of temperature for luminosity is 3°–40° C. It is stated that 100 sq. cm. of luminous area gives light enough for reading, and that the light is noticeable for a distance of some 30 m. The poisonous properties of the fungus do not appear to be destroyed by cooking.

THE wild and cultivated forms of the Japanese cherries form the subject of a monograph by M. Miyoshi in the Journal of the College of Science, Tokyo, vol. xxxiv., art. 1. The species concerned are *Prunus mutabilis,* Miyos., *P. sachaliensis,* Miyos., and *P. serrulata,* Lindl. Some sixty-eight varieties of the last-named species are described and figured in a series of very beautiful coloured plates. Ten forms of *P. sachaliensis* and sixty-five forms of *P. mutabilis* are similarly described and illustrated. There is some introductory historical matter, and under each form the Japanese name, flowering time, and other particulars are given. Many of the forms are now known in Great Britain, but the monograph deserves careful study by all lovers of flowering trees, if only because of the artistic beauty of the plates.

THE *Scottish Naturalist,* in the form of a double number (July–August), is devoted entirely to the "Report on Scottish Ornithology in 1915." Though this *résumé* contains nothing of very remarkable import, it is full of interesting items. Among these must be mentioned an extension of the breeding range of the gannet, four pairs of which nested on the Noup of Noss, Bressay, Shetland, during this season. Until now all the known nesting-places of this species in our islands, with the exception of the Bass Rock, have been on the west coast. This report is the work of Misses Evelyn Baxter and Leonora Rintoul, and we regret to notice that while showing a determination to be very up-to-date in the matter of nomenclature they have not adopted that laid down by the British Ornithologists' Union, of which they are honorary members.

In the *Irish Naturalist* for July Mr. R. A. Phillips describes and figures two species of fossil Pisidium new to Ireland. They were obtained from a deposit in the Suir, near Fiddown, about fifteen miles above Waterford. One of these, *P. supinum*, was found in association with a thickened, triangular form of *P. casertanum*, which it closely resembled; the other, *P. parvulum*, has apparently not previously been recognised as a British species, having been "confused with, and mistaken for," the young of *P. supinum*. Mr. Phillips, in his paper, gives the distinguishing characters between the two species in tabular form. Many of the shells which he has obtained from the Suir and Shannon have all the appearance of drift-shells only recently killed; hence it is probable that the species will be found living in both rivers. For similar reasons he believes that *P. supinum* will also be found living in Irish rivers.

The second volume of "Papers from the Geological Department, Glasgow University" (see Nature, vol. xcvi., p. 236), bears further testimony to the energy of Prof. J. W. Gregory and his colleagues. One of the most notable contributions is that in which Prof. Gregory records the discovery of pebbles of the Moine Gneiss in Torridon Sandstone, and thus makes a marked advance in the stratigraphy of the Scottish Highlands. His description of "Pseudo-Glacial Features in Dalmatia" contains several illustrations from the karstland that are specially interesting at the present time.

Dr. H. H. Hayden's "Notes on the Geology of Chitral, Gilgit, and the Pamirs" (Rec. Geol. Surv. India, vol. xlv., pub. 1916, p. 271) need no apology for incompleteness. They were drawn up during steady journeying in a region of rocky and snow-capped heights, of which the photographic illustrations give a striking record. Dr. Hayden finds that the trend-lines of the mountains between the Pamirs and Kungur and Mustagh-ata do not present anomalies such as Suess and Fütterer pointed out. Stoliczka's and Ivanov's observations on the Pamirs, published in 1878 and 1886, are now for the first time supplemented.

Dr. W. F. Smeeth's "Outline of the Geological History of Mysore" (Bangalore, price one rupee) is accompanied by a coloured geological map of southern India, on a scale of about one inch to one hundred miles. The references to the banded iron-ores, the quartz-magnetite dykes or tongues in charnockite, and the intrusive character of the "peninsular gneiss," once regarded as "fundamental," are brief, but are suggestive for comparison with other pre-Cambrian regions. The Dharwar schists have affinities with the Keewatin series of North America.

The remarkable new canal between Arles, on the Rhone, and Marseilles is the subject of an article by Prof. Piero Gribaudi in the *Bollettino della Reale Societa Geographica Italiana* for July (vol. v., No. 7). The canal, which was opened last May, is carried through the hills north of Marseilles in a tunnel four and a half miles long and 72 ft. wide, with a depth of 10 ft. of water. It will make direct barge traffic possible between Marseilles and the Rhône. Equally important is the construction of a new line of railway from Marseilles to Miramas, where it connects with the Paris-Mediterranean line. This new line leaves Marseilles westward along the coast, and is an alternative to the long Nerte tunnel, which was always the weak link on the old line in case of an accident.

The Canadian Department of Mines has just published a volume (Bulletin No. 11) upon the "Investigation of the Peat Bogs and Peat Industry of Canada in 1913–14," by Aleph Anrep, which will be found interesting to all concerned in the problem of the utilisation of peat. It may be looked upon as a continuation of the volumes upon peat already issued by the same Department, and brings the information upon this subject well up to date. The first portion contains detailed descriptions of a number of peat bogs in Ontario, Quebec, Prince Edward Island and Nova Scotia, and is followed by a particularly well illustrated account of the botany of these bogs. This is followed by a series of notes upon special appliances for the manufacture of peat fuel, and upon the peat production in certain foreign countries, and an appendix contains abstracts of Canadian patents for excavating and handling peat and for the manufacture of peat fuel. This bulletin is a further example of the sedulous care with which the Canadian Government endeavours to foster the development and utilisation of the natural resources of the Dominion; it is greatly to be desired that the example thus set may be followed in our country, and that we may see before long some Government department specially charged with the duty of seeing that British natural resources are turned to the best possible account.

An attempt to gauge the agricultural possibilities of Australia so far as the climatic factor is concerned has been made by Mr. Griffith Taylor, and his results are published in Bulletin No. 11 of the Commonwealth Bureau of Meteorology. The scope of the inquiry includes the distribution of cattle, sheep, and wheat. Rainfall is the chief control in the case of wheat, and scarcely of less value as regards cattle and sheep. Temperature is an important factor in the case of wheat, and of considerable influence in the distribution of sheep. Cattle, on the other hand, show a wide adaptability to temperature. The author briefly considers the topographic control and the question of accessibility, but to both these, as well as to the question of soil, more attention would need to be paid to make such a survey complete. These, however, he rules outside the scope of the memoir. From a consideration of the temperature and rainfall in the wheat lands of Texas and northern India, Mr. Taylor concludes that south-eastern Queensland is well suited for wheat grown under the same conditions. The area at present under wheat in Queensland is small. In these new wheat lands it is suggested that the Indian practice should be followed of planting the wheat towards the end of the summer rains—that is, early in March. The wheat would ripen in about four months, during which it would receive an additional five inches of rainfall.

It is, we think, almost an article of faith amongst chemists that the preparation of sodium chloride pure enough for ordinary analytical operations is a comparatively easy matter. But, according to Mr. Clifford Lohman, who writes from Cornell College in the *Chemical News* of August 4, this is not the case. Three specimens of sodium chloride (presumably of

American manufacture), each alleged to be chemically pure, contained respectively 0·57, 0·45, and 0·49 per cent. of potassium chloride. Samples prepared by this author (1) by precipitation of a saturated solution of common salt with hydrogen chloride; (2) by purification with milk of lime, excess of which was precipitated with sodium carbonate, the excess of the latter being neutralised with hydrochloric acid; (3) from metallic sodium by dissolution in water and neutralisation of the solution with hydrochloric acid; and (4) by neutralising with hydrochloric acid a solution of the most nearly pure caustic soda (not purified with alcohol), contained respectively: (1) 0·42, (2) 0·32, (3) 0·27, and (4) 0·48 per cent. of potassium chloride. In each case the potassium was estimated by the platinic chloride method. It would be interesting to learn whether the "chemically pure" sodium chloride of English origin is equally contaminated.

THE ions of low mobility the presence of which in air at ordinary pressures was discovered by Langevin have frequently been called large ions owing to the belief that their low mobility was due to their relatively great mass. Some measurements made at the suggestion of Prof. Millikan by Mr. L. B. Loeb, and published in the July Proceedings of the American Academy of Sciences, seem to indicate that this belief was unjustified. Using the alternating-field method of Rutherford, Mr. Loeb has measured the mobilities of both positive and negative ions at fields from 90 to 12,000 volts per centimetre, and in neither case has he found any marked increase in the mobility. At the high speeds due to the strong fields the clusters of uncharged molecules about an electron, which were supposed to constitute the ion of low mobility, should be broken up and the mobility show an increase corresponding to the reduced mass. As the measurements show no such increase, the author adopts the theory that each ion consists of a single molecule and its low mobility is due to the action of its charge on neutral molecules increasing the number of collisions.

ACCORDING to the *Scientific American*, there has been a remarkable increase, since the war commenced, in the number of American engineering firms who make use of the metric system of measurement. Many firms who two years ago upheld the yard, foot, inch, eighths, sixteenths, thirty-secondths, and sixty-fourths as more convenient than the metre and its decimal subdivisions are now turning out machines gauged solely on the metric system. This remarkable *volte-face* appears due to the desire on the part of American firms to meet the demand for machinery which, in the past, has been supplied by Germany. Whatever the reason for this rapid change, the fact that it has been carried out voluntarily in so short a time seems a sufficient refutation of the argument that the introduction of the metric system into engineering works in this country would cause endless confusion and great expense.

WE have received from Prof. R. Gautier, director of the Geneva Observatory, the annual report describing the chronometrical service carried on in that institution. It appears from the report that the war has affected the activity of the observatory very adversely, and that the number of instruments submitted to trial conditions has fallen below that of any year since 1872. Of marine chronometers only one has been received, and of pocket watches, 152, as against 296 in 1914. M. Gautier takes, however, a hopeful view of the national industry in the future when normal conditions have returned, basing this opinion on the improved character of the work. For if the number of instruments has been less, the proportion of those which obtain the highest certificate of excellence has increased. No less than 95 per cent. of the whole deposits has obtained a first-class certificate, and less than 10 per cent. of the instruments submitted to test has failed. These figures constitute a record in the history of the annual trials. M. Gautier gives some details of the examination of chronometers at the neighbouring observatories of Neuchatel and Besançon, giving also an abstract of the Kew results for comparison. The effect of the war is everywhere noticeable in the quantity of instruments deposited, but the quality of the work is everywhere maintained with gratifying uniformity. The general adoption of the Guillaume balance has contributed to this successful result. In the Kew report it is stated that the Swiss manufacturers have universally adopted the Guillaume type, and "il n'y a pas de doute que l'emploi de ce type de balancier contribue largement aux brillants résultats obtenus par les montres déposées par ces fabricants."

IN response to many requests, the Board of Agriculture and Fisheries has issued (at 1*s.*) a second edition of vol. i. of the "Special Reports on the Mineral Resources of Great Britain." It will be remembered that the work deals with the uses, distribution, treatment, and output of tungsten and manganese ores, and that in it particulars are given of the mines containing the ores.

AN interesting volume has been sent to us by the Royal Cornwall Polytechnic Society, entitled "Historical Synopsis of the Royal Cornwall Polytechnic Society for 81 Years, 1833–1913," by Wilson Lloyd Fox, with indexes by Howard Fox. The work is divided into two parts, covering the periods 1833–81 and 1882–1913. The activities of the society have been numerous and valuable, and merit this permanent record.

A NEW series entitled the "Cambridge Botanical Handbooks" is being edited by Prof. A. C. Seward and Mr. A. G. Tansley for the Cambridge University Press. The development of certain branches of botanical science in recent years has emphasised the need for books by specialists on different groups of the vegetable kingdom, and the new series is being issued to meet this want. A book by Prof. West dealing biologically with all the algæ included in the Myxophyceæ, Peridinieæ, Bacillacieæ, and Chlorophyceæ, both fresh-water and marine, will be the first volume to appear. It will be followed by another work by Prof. West, on all the fresh-water algæ (with the exception of desmids and diatoms) which are known to occur in the British Isles. Volumes on lichens, fungi, and gnetales, by Miss Lorrain Smith, Dr. Helen Gwynne-Vaughan, and Prof. Pearson respectively, are in an advanced state of preparation.

THE Harvard University Press (Cambridge, Mass., U.S.A.) has begun the publication of a series entitled "Harvard Health Talks," being the substance of some of the public lectures delivered at the Medical School of Harvard University, and aiming at providing in easily accessible form modern and authoritative information on medical subjects of general importance. Among the volumes in the series we notice "The Care and Feeding of Children," by J. L. Morse; "Preservatives and other Chemicals in Food: their Use and Abuse," by O. Folin; "The Care of the Skin," by C. J. White; "The Care of the Sick Room," by E. G. Cutler; and "The Care of the Teeth," by C. A. Brackett. The series is published in this country by the Oxford University Press.